

Claims

What is claimed

1 1. A device comprising:
2 an array of electrostatically activated members formed in a layer
3 comprising silicon; and
4 a substrate comprising a ceramic material and including conductors
5 formed on a major surface of the substrate and in via holes formed in the
6 substrate, the conductors being positioned so as to selectively operate the array
7 of members.

Sub 1 2. The device according to claim 1 wherein the members are
2 rotatable mirrors.

Sub 1 3. The device according to claim 2 wherein the array is
2 at least 8×10^6 .

3 4. The device according to claim 1 wherein the array is separated
4 from the substrate by a spacer layer.

Sub 1 5. The device according to claim 1 further comprising a layer of
2 metal on a major surface of the silicon layer.

Sub 1 6. The device according to claim 2 wherein the mirrors are adapted
2 to rotate about at least two axes.

1 7. The device according to claim 1 wherein the ceramic substrate
2 comprises AlN.

1 8. The device according to claim 1 wherein the substrate has a
2 flatness of less than or equal to 10 microns.

1 9. The device according to claim 1 wherein the substrate has a
2 surface roughness of less than or equal to 1 micron.

1 10. The device according to claim 1 wherein the conductors have a
2 line width of less than 2 microns and a spacing less than 2 microns.

11. The device according to claim 1 wherein the conductors positioned to operate a member comprise an array of at least four conductors extending through separate via holes.

12. A device comprising:

an array of at least 8x10 mirrors rotatable about at least two axes formed in a layer comprising silicon;

a spacer layer formed over a surface of the silicon layer; and

a substrate comprising a ceramic material comprising AlN having a flatness of less than or equal to 10 microns and a surface roughness of less than or equal to 1 micron including conductors formed on a major surface of the substrate and in via holes formed in the substrate, the conductors being positioned so as to selectively operate the array of mirrors, wherein the conductors positioned to operate a mirror comprise an array of at least four conductors extending through separate via holes.

13. A method of forming a device comprising:

forming an array of electrostatically activated members in a layer of silicon; and

mounting said silicon layer over a substrate comprising a ceramic material which includes conductors formed on a major surface of the substrate and in via holes formed in the substrate, the silicon layer being mounted so as to position the members with respect to the conductors to permit selective operation of the members.

14. The method according to claim 13 wherein the members are movable mirrors.

15. The method according to claim 13 wherein the silicon layer is mounted using an epoxy bond.

16. The method according to claim 13 wherein the silicon layer is mounted using a solder bond.

17. The method according to claim 13 wherein a spacer layer is included between the silicon layer and the ceramic substrate.